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Area 25X1A

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1. History and Organization

- a. The main administration for all uranium mines and washing plants of the (Jachymov) District was in the former Joachimsthal Tobacco Plant.
- b. Soviet inspector Uzerov was manager of the Bruederlichkeit (Bratrstvi) and Elias Washing Plants. He had been in charge of the washing plants since 1947 but left in August 1949. He once told source that he would return to the Soviet Union because he had already been in Joachimsthal for two years, and he was not allowed to stay longer. He was replaced by the two Soviet engineers, Tushenko (fnu) and Skortsov (fnu),

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who previously supervised the construction of the Elias Washing Plant. These two engineers shared in the management of the three existing washing plants.

- c. Soviet chief engineer Gregori (fnu) was the manager of all the mines indicated in the Annex.
- d. Each of these mines was headed by a Soviet chief foreman, to whom other foremen, mostly Czechs, were subordinate.
- e. Each washing plant had a laboratory where female laboratory students and chemists, mostly Czechs, were employed. Source observed that the laboratory employees were frequently replaced.
- f. The main laboratory was in the Joachimsthal Tobacco Plant. The laboratories of the washing plants were inadequately equipped, and the individual ore specimens mined in pitchblende veins were tested in the main laboratory.
- g. All Soviets wore civilian clothes. According to them the wearing of their uniforms was prohibited.
- h. According to Soviet engineers the mines and other installations were Soviet property. These engineers also said that the entire uranium ore output was shipped to the Soviet Union. Source did not observe the use of any of this production by Czechs.
- i. In 1947 all mining installations were very primitive and there was only one washing plant. Two additional washing plants were built between May 1947 and September 1949. The haulage installations were also considerably improved and modernized.

2. Layout and Area

- a. For layout see Annex.
- b. Area
 - 1) The PWs said that uranium ore was prospected west and east of Joachimsthal.
 - 2) Aside from the mines indicated on the sketch source was told by Czech workmen of a mine in Seifen.
 - 3) There is a mine south of Abertham. Source was told that it was a uranium mine.
 - 4) Regarding prospecting activities for uranium ore, source learned from PWs in September 1949 that ditches were cut in the area north of Schoenwald (N 51/K 70) and men with uranium testing instruments were observed. PWs arriving in the Central Camp in August and September 1949 said they had been employed on excavation work in this area.

3. Indications on Individual Mines

- a. Bruederlichkeit Mine (Bratrstvi Mine) (See No. 1 in Annex)

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- 1) Mining operations were still very primitive in January 1947. The mine cars were pushed by hand from January to April 1947 but from then on a Diesel locomotive pulled the cars to the main level. In 1948 source observed that a second Diesel locomotive had been put in operation, but he did not learn of any other improvements in mining facilities.
- 2) A gallery branched off eastward from the mine area (see No. 1 of Annex). It was estimated to be about 1,600 feet long and led to the underground haulage shaft and compressor station. This gallery had a double-track line for transporting mined material. According to Poles and Czech workmen the ventilating shaft rose to the surface near Duernberg.
- 3) The Bruederlichkeit Mine was about 1,500 feet deep and had seven mining levels. Level No. 6 was generally designated the Franziska Level. A hoisting shaft led from level 6 to level 7 and was not connected with the main shaft. The Bruederlichkeit Mine was equipped only with wooden mine cars up to February 1947, when metal cars were put in use. One hundred twenty to one hundred fifty mine cars were estimated to be in operation in May 1947.
- 4) One mine shaft consisted of 80 German PWs and about 40 Czech civilian workmen. Work was done in three 8-hour shifts. Source observed many more Czech workmen than German PWs in 1948 and 1949, but could not give any definite figures. The workmen did not wear protective clothing in 1947 and only a few wore it in 1948.
- 5) In May 1947 the norm for one miner was seven mine cars in one 8-hour shift. The volumetric capacity of one wooden mine car was 0.46 cu.m. and of one metal mine car 0.50 to 0.52 cu.m. Each miner had to produce seven carloads of rock material based on the volumetric capacity of 0.46 cu.m. per mine car. Shift production averaged 90 to 100 mine cars. However, 120 mine cars were occasionally produced, but these were rare peak performances. Source learned from PWs in the Bruederlichkeit Mine District in 1948 that the mining output had increased to an average of 140 to 150 mine cars, as additional workmen had been employed.
- 6) The rock material produced was usually very soft. Source was told that it was lime-slate rock material in which there were grey and black traces. In February and March 1947 a pitchblende vein was discovered on level 6 at the face of a drift. The vein had a deep black appearance and was about 8 inches thick and about 6½ feet long. Soviet engineers, including chief engineer Gregori, came immediately, and mining operations on this vein started at once. Source could not say if the mining results showed that this vein reached beyond the visible 6½ foot length.

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- 7) A foreman with a testing instrument descended to the level with each shift and prospected for possible uranium ore. Another foreman with a testing instrument was posted at the shaft mouth to test each ascending carload for uranium ore. The mine cars registering activity were marked and sent to the washing plant. In May 1947 from 4 to 10 cars out of 90 to 100 were sent to the washing plant. Pure pitchblende was collected on the levels in special mine cars and sent immediately to the ore bunker attached to the washing plant.
- b. Bruederlichkeit Washing Plant II (No. 13 of Annex)
- 1) Construction of this plant started at the end of May 1947 and was completed by July 1947, when it was put into operation. It covered an area of about 65 by 40 feet and had the following installations in July 1947:
 - a) 2 ball mills, 1 small and the other somewhat larger
 - b) 1 crushing mill
 - c) 12 to 16 vibrator tables.
 - 2) The drying kiln of the old washing plant I (No 12 of Annex) was moved to the new washing plant in July 1947. By August 1949 the drying kiln of washing plant II had been returned to washing plant I. There was no drying kiln in washing plant II, and concrete (sic) material had to be sent to washing plant I for drying.
 - 3) The rock material dressed in the washing plant was produced in the Bruederlichkeit (Bratrstvi), Traum Gottes (Sen Bozi), Einigkeit (Svornost), and Duernberg Mines. Source could not supply specific information on the work force. Work was done in the washing plants in three 8-hour shifts.
 - 4) The rock material came to the crushing mill for rough-breaking. It was then automatically conveyed to both ball mills, where it was mixed with water and pulverized. The thick-flowing mass came on a distributor for distribution to the individual vibrator tables. The tables vibrated constantly. The uranium ore was deposited in grooves, while the remaining material flowed off. The uranium ore was collected in troughs under each table. The collected mass, generally designated concentrated, was grey to black according to the amount of uranium elements. At each change of shift the concentrate material produced in the preceding shift was collected in containers and sent to washing plant I for drying.
- c. Bruederlichkeit Washing Plant I (No. 12 of Annex)
- 1) The washing plant was in existence in January 1947. In August 1947 it was equipped with the following installations:
 - a) 1 stone crusher
 - b) 1 crushing mill
 - c) 1 ball mill
 - d) 2 drum sieves between the crushing mill and ball mill
 - e) 32 vibrator tables.

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- 2) By August 1949 both drum sieves had been removed. According to a Czech workman they were considered superfluous. The remaining setup had not been changed. There was also a drying kiln in this washing plant. The building was a terraced construction built on the mountain slope.
- 3) The rock material processed in the washing plants I and II came from the same mines. Source could not supply any concrete information on the work force. He observed only that work was done in three 8-hour shifts. The working procedure was the same as in washing plant II.
- 4) The concentrate mass drained into troughs under the vibrator tables was collected in large boxes after each shift. A 30-mm layer of this mass was put on a plate and moved to the kiln, which was continuously in operation. The drying period lasted three to four hours. The concentrate mass was weighed before and after drying.
- 5) During the weighing process of the wet concentrate, about 350 to 400 kg of wet concentrate produced in the washing plants I and II was dried in one shift. The weight of the concentrate amount submitted to the drying process in one 8-hour shift was reduced about 100 kg. (350 to 400 kg correspond to 25 to 28 plates fully covered with wet concentrate.) After drying the concentrate was packed in wooden boxes and delivered to the ore chamber attached to the washing plant. A German PW geologist was employed in the ore chamber of the Bruederlichkeit Washing Plant. In August and September 1949 he often said that the delivered concentrate had a uranium content of 20 to 32 percent. Source did not hear of any higher uranium percentage figures.
- 6) There was a laboratory in the ore chamber which was allegedly the test instrument center. The pure, almost deep black, uranium ore mined in the pitchblende veins of all mines indicated in the attached sketch came immediately to the ore chamber of the Bruederlichkeit Washing Plant I without previous dressing. The uranium percentage was determined in the instrument test center. Here the ore was packed in drums and removed to Ostrov for rail shipment. The concentrate coming from the washing plant was also tested in the ore chamber and packed in drums.
- 7) According to the PW geologist, material containing less than seven percent uranium ore was not shipped. However, as a prescribed amount of ore had to be shipped (source does not remember the figure) and was not always produced, pure earth was sometimes mixed with the concentrate in the ore chamber. Thus, an increased amount still exceeding a seven percent uranium ore content was obtained.
- 8) The filled drums weighed about 50 to 60 kg. Rock material exceeding 50 percent uranium ore content was of Category A while the material below 50 percent was Category B.
- 9) Uranium ore shipments left monthly. The monthly production (vein pitchblende mostly of more than 50 percent uranium ore content and concentrate of about 30 percent) was packed in drums and piled for shipment. The lids of the drums were welded on. According to Czech workmen, a train generally arrived the middle of the month to collect the shipments.

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- 10) The truck shuttle service for loading the ore into the railroad cars lasted up to three days. Source never saw any material (boxes etc) other than drums being loaded. Source observed uranium ore material being poured into sacks and trucked away from the Bruederlichkeit Washing Plant II. He learned from Czech workmen that this ore was trucked directly to Dresden, where it was shipped by air to the Soviet Union. The inferior material was shipped in open railroad cars to (sic) the tobacco plant. Most of the railroad cars returned later. These shipments and the truck shipments to Dresden were stopped in the Summer of 1947. There were only truck shipments to Ostrov or Volkovice (W 51/K 70). Shipments were no longer loaded at the tobacco plant.

d. Elias Washing Plant (No 14 of the Annex)

- 1) The construction of this washing plant was started in November 1947. It was completed and fitted with machinery in June 1948 but was not in full operation before September 1948.
- 2) The building was a terraced construction about 160 feet wide and 130 feet deep. In June 1948 it had the following installations:
 - a) 1 stone crusher. A second stone crusher arrived in August 1949.
 - b) 2 crushing mills
 - c) 2 ball mills
 - d) 2 classifying screens
 - e) 104 vibrator tables. (The table size in the Elias Washing Plant was the same as the Bruederlichkeit Washing Plant.)
 - f) 1 electric drying kiln
 - g) 4 pans for steam drying
 - h) 4 additional pans for steam drying came with the second stone crusher in August 1949
- 3) The Elias Washing Plant had a sorting machine which the Bruederlichkeit Washing Plant did not have. It was installed between the ball mills and the classifying sieves. It separated coarse material from fine mud material and returned it to the ball mill. The fine mud material passed through two mud pumps to the distributor installations.
- 4) The uranium-containing rock material came from the Werner, Edward, Elias, Irene, and Werlsgruen Mines. Pure pitchblende mined in the veins did not come to the washing plant but was sent directly to the Bruederlichkeit Mine. Only rock material showing traces of uranium came to the Elias Washing Plant for dressing. Work in the washing plant was done in three 8-hour shifts. The dressing procedure was similar to that of the Bruederlichkeit Washing Plant I and II.
- 5) The dried concentrate came to the ore bunker where it was tested for uranium content. The dried concentrate was also weighed. A German laboratory student employed in this washing plant said that an average of 600 to 800 kg of dried concentrate was delivered in one shift. According to the same student the uranium ore content varied between 15 and 30 percent.

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- 6) After testing in the laboratory of the ore chamber the material was packed in drums and piled. It was observed that the drums were loaded on trucks and shipped away regularly in the middle of the month. According to PWs escorting the trucks as loaders, the ore was loaded in railroad cars in Ostrov.
- 7) The drums in this washing plant contained only the monthly production of concentrate. Pure vein pitchblende material was sent immediately from the mines to the Bruederlichkeit Washing Plant and shipped from there.
- 8) A very small brook passed the washing plant building. The water was not sufficient for the washing plant operation. For this reason the washing plant after it had been completed could not work at full capacity from June to September 1948. In August and September 1948 a pipe line was laid from a lake 650 feet away to the newly built water basins. The water flowed through the pipe line to the upper basins and from there to the washing plant. The water used by the washing plant was returned to the basins, mixed with fresh water, and returned to the washing plant. Thus some of the difficulties in the water supply were overcome. Despite the collection of the mountain spring water the water shortage continued. Although the washing plant could operate, any expansion of the plant was impossible.

e. Einigkeit (Svornist) Mine (No 3 of Annex)

- 1) It was observed that a new pithead frame (three-story structure) was under construction early in 1949. The pithead frame was completed by August 1949. Other significant above-ground installations were not seen.
- 2) Source believes that there was no dressing plant at the Einigkeit Mine because he saw boxes arrived at the Bruederlichkeit Washing Plant with the Einigkeit Mine identification mark. Some came to the ore chamber, some to the washing plant. Those boxes coming into the washing plant for dressing contained uranium-bearing rock material. The above mentioned PW-geologist told source that the boxes delivered to the ore chamber contained pure pitchblende which was packed in drums without being dressed.
- 3) The rock material showing only slight traces of uranium ore was put on the waste dump (No 10 of Annex). This dump was in an almost completely filled depression. In August and September 1949 rock material loaded in open trucks repeatedly came to the Bruederlichkeit Washing Plant. This material was taken from the waste dump of the Einigkeit Mine according to PWs escorting the truck driver. This material came for dressing only if the delivered mine output did not fully utilize the capacity of the washing plants.

f. Traum Gottes (Sen Bozi) Mine (No 2 of Annex)

The rock material produced in this mine came from the mine to the Bruederlichkeit Washing Plant for dressing. No boxes containing pitchblende were seen coming from this mine.

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g. Duernberg Mine (No 17 of Annex)

- 1) The winding plant on the right side of the highway before entering Duernberg was reported to be part of the Duernberg Mine installations.
- 2) In the Bruederlichkeit Washing Plant a Czech workman said that rock material produced in the Duernberg Mine came to the Bruederlichkeit Washing Plant for dressing through a gallery connecting the Bruederlichkeit and Duernberg Mines (No. 20 of Annex)

h. Werner (Rovnost) Mine (No. 4 of Annex)

- 1) The sifting station at the waste dump bordering on the mining area was completed by June 1949 and was in full operation after that.
- 2) The uranium-containing material was trucked to the Elias Washing Plant for dressing; boxes with pure pitchblende came to the Bruederlichkeit Mine. The inferior material was put on a waste dump close to the mine. The dump was already very large in the Spring of 1949.
- 3) The sifting station had no roof. A feeding conveyor belt carried the uranium-containing rock material from the waste dump to two drums where it was crushed. Two other conveyor belts led from the drums, one carrying the uranium-containing material and the other removing the dead stone. Some Czech foremen with testing instruments were posted at this conveyor belt to search for possible uranium ore material. The first conveyor belt carried the uranium-containing material to a funnel under which trucks could be moved. By opening a slide bar at the end of the funnel the material could be dropped into the truck and then taken to the Elias Washing Plant.
- 4) A Czech engineer who managed the construction of the sifting station stated that about 80 cu.m of rock material passed through this installation during one 8-hour shift. Twenty-five to thirty truckloads of uranium-containing material were shipped from the sifting station to the Elias Washing Plant in one shift. About one-third was discarded as dead stone material. The sifting station did not operate all day. Work was done in two 8-hour shifts. In addition to a number of Czech workmen, about 60 German PWs were employed in the early shift, and about 40 PWs in the late shifts.

i. Edward Mine (No 5 of Annex)

- 1) PWs employed in this mine said that mining started at the end of 1948. Only a derrick existed there before. In early August 1949 source observed that the installation was surrounded by a barbed-wire fence.
- 2) According to PWs, uranium findings were made. This was confirmed by the German laboratory student of the Elias Washing Plant laboratory.

k. Elias and Irene Mine No. 6 of Annex)

- 1) In May 1949, construction of a pithead frame of the same design as that of the Einigkeit Mine was started. It was scheduled to be completed by October 1949. In February and March 1949 a rich deposit of pure pitchblende was discovered in the Irene section of the Mine. Uranium-containing material was carried on a conveyor belt from the mining installation to the Elias Washing Plant for dressing.

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1. Werlsgruen Mine (No. 7 of Annex)

This mine was operating by November 1947. Source learned that uranium ore material produced in this mining area was at least partly sent to the Elias Washing Plant for dressing.

4. General

- a. In September 1949 a Czech workman said that all mines entered in the annexed sketch were connected by galleries.

Mines connected by galleries:

Duernberg - Bruederlichkeit (No 20 of Annex)
 Bruederlichkeit - Traum Gottes
 Bruederlichkeit - Einigkeit (No 21 of Annex)
 Einigkeit - Werner (No 22 of Annex)
 Werner - Elias and Irene (No 23 of Annex)
 Elias and Irene - Edward (No 24 of Annex)
 Elias and Irene - Werlsgruen (No 25 of Annex)

- b. A wooded tract of land was cleared in the vicinity of the Central Camp and of Traum Gottes Mine. The PWs there were told by Czech workmen that a new washing plant was to be built on this site (see No. 18 of Annex.) Source estimated its size at about 650 x 330 feet. However, no construction work was observed in the late summer of 1949. Czech workmen occasionally mentioned that this project had been dropped.
- c. No. 27 of Annex was formerly a tennis court where numerous cantonment buildings had been established.

5. Summary

- a. Source did not know of other plants for processing uranium ore material there than the three reported washing plants in or around Joachimsthal.
- b. Pitchblende found in the veins which contained at least 50 percent uranium ore elements was packed in drums and shipped away without being processed. The uranium-containing material was washed in the three existing washing plants. Inferior material was thrown on the waste dump.
- c. A concentrate with a uranium ore content of 20 to 32 percent was produced. The following is a list of the amounts being dressed:
- 1) Bruederlichkeit Washing Plant as of August and September 1949: 250 to 300 kg of dried concentrate per shift. Work was done in three shifts.
 - 2) Elias Washing Plant as of July and August 1949: 600 to 800 kg of dried concentrate in each of the three shifts.
 - 3) The two washing plants with drying kilns (Bruederlichkeit, and Elias) and the Bruederlichkeit Washing Plant II therefore totaled a shift output varying between 800

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1100 kg of 20 to 32 percent uranium-containing ore material. This would correspond to a monthly peak production of 75 to 100 tons of concentrate assuming three shifts and thirty working days. The pure pitchblende produced in all the mines in the vicinity of Joachimsthal (as indicated in annexed sketch) is not included in this figure. This pitchblende was found in veins and its production by-passed dressing in the washing plants. No information on the quantity of this material was available.

- d. Since the summer of 1947, the entire pure pitchblende production has been tested in the ore chamber of the washing plant and packed in drums. The drums were closed by welding. The uranium-containing rock material was washed in three washing plants and, after being dried, was packed in drums and piled for shipment. These drums were also closed by welding.
- e. Both kinds of uranium ore material were stored and, usually, in the middle of each month, trucked from the washing plants to the Ostrov railroad freight station. According to Czech workers, it happened occasionally that loading terms had to be postponed for a few days because transportation facilities were not available. Source did not know the destination of these uranium ore shipments.

Comments:

- a. This report gives a comprehensive survey on the uranium mining district in the Joachimsthal area and its development from early 1947 to the fall of 1949.
- b. Source supplied comparatively little information on the mining installations and production since he was employed in the Bruederlichkeit (Bratestvi) Mine for only a short time and only saw or heard of the other mining installations.
- c. The indicated 1948 production of 140 to 150 mine cars per shift corresponds to the output stated in a previous report (180 mine cars per shift in October 1948).
- d. The indications on the washing plants are more valuable. He indicated the following washing plants in the Joachimsthal area:
 - 1) One washing plant existed at the Bruederlichkeit Mine until July 1947.
 - 2) A second washing plant was put into operation at the Elias Mine in September 1948 which was still being enlarged in the fall of 1949.
 - 3) All these washing plants were crushing plants with washing installations where the uranium-containing material was dressed to a concentrate of 20 to 30 percent. Source was not told of any chemical dressing in the Joachimsthal area.
 - 4) Source subdivided the mined material into the following three groups:
 - a) Pure pitchblende mined in veins. It was sent from all mines of the Joachimsthal district to the central ore chamber at the Bruederlichkeit Washing Plant and from there shipped without being processed.

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- b) Uranium-containing rock material. It was crushed and washed in one of the three washing plants and dressed to a concentrate material of 20 to 30 percent. This concentrate was monthly trucked from the Bruederlichkeit and Elias Washing Plants to the Ostrov railroad station where shipments left by rail.
- c) Inferior material was thrown on the waste dumps. If the capacity of the washing plants was not fully utilized this material was also processed. Only material exceeding 7 percent uranium-ore content was shipped.
- e. However, these indications do not explain the existing discrepancies between the shipment and production reports. Concentrate material could not have existed in the quantities indicated in the reports on uranium ore shipments although sources of these reports are considered credible. They must have been shipments of uranium ore material with inferior uranium ore percentage of which source was not informed. These shipments have possibly decreased since the washing plants were completed. Reports of a more recent date are not available.
- f. Since all uranium-containing rock material passed through the washing plants, according to indications of source, the concentrate delivered by the three washing plants can be considered a standard for the production of all mines. According to the report, the shift output of the drying kilns of the Bruederlichkeit and Elias washing plant was about 800 to 1,000 kg of dried concentrate material of 20 to 32 percent in the fall of 1949. This would mean a monthly maximum output of 75 to 100 tons of concentrate with an uranium content of about 20 tons (as in U_3O_8).
- g. According to the indications of a previous report, a monthly output corresponding to about 7 tons of uranium ore elements (as in U_3O_8) was yielded. No definite production estimate can be made from the different available shipment and production figures which are sometimes very contradictory. The general 1949 production increase in the adjacent Johann-Georgenstadt District indicated in a previous report, may also suggest a production increase in the richer Joachimsthal District. This fact is also indicated by the enlargement of the washing plants.
- h. A monthly output of about 20 tons of uranium ore elements (as in U_3O_8) would correspond to ten times the maximum pre-war production figure.

1 Annex: Sketch of the Joachimsthal Uranium Mining District.

Legend to Annex

- 1 Bruederlichkeit Mine
- 2 Traum Gottes Mine
- 3 Einigkeit Mine
- 4 Werner Mine
- 5 Edward Mine
- 6 Elias and Irene Mine
- 7 Werlsgruen Mine

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- 8,9,10,11 Uranium ore waste dumps
- 12 Bruederlichkeit Washing Plant I
- 13 Bruederlichkeit Washing Plant II
- 14 Elias Washing Plant
- 15 Water ditch
- 16 Derricks
- 17 Duernberg Mine
- 18,19 Deforested area for building site of projected washing plant
- 20 Duernberg - Bruederlichkeit connecting gallery
- 21 Bruederlichkeit - Einigkeit connecting gallery
- 22 Einigkeit - Werner connecting gallery
- 23 Werner - Elias - Irene connecting gallery
- 24 Elias and Irene - Edward connecting gallery
- 25 Elias and Irene - Werlsgruen connecting gallery
- 26 Former tobacco plant
- 27 Cantonment

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